WHAT IS CLAIMED IS:

1. A probe for detecting magnetic resonance signals emitted from a region of interest in an object comprising:

(a) at least first and second electrodes positionable on or within the object in proximity to the region of interest, and

(b) feed wires coupling the electrodes to a signal detector,

wherein the electrodes and feed wires cooperatively function with matter within the region of interest to form a signal detecting coil.

2. The probe as defined by claim 1 wherein the first and second electrodes are spaced apart with matter within the region of interest therebetween.

3. The probe as defined by claim 2 wherein the matter comprises tissue.

4. The probe as defined by claim 2 wherein the matter comprises fluid.

5. The probe as defined by claim 2 wherein the number of electrodes exceeds two.

6. The probe as defined by claim 5 wherein the electrodes are carried by a catheter.

7. The probe as defined by claim 6 wherein electrodes are rings around the circumference of the catheter.

8. The probe as defined by claim 6 wherein the electrodes are extendable from and retractable within the catheter.

9. The probe as defined by claim 2 wherein the electrodes are carried by a catheter.

10. The probe as defined by claim 9 wherein the electrodes are rings around the circumference of the catheter.

11. The probe as defined by claim 9 wherein the electrodes are extendable from and retractable within the catheter.

12. The probe as defined by claim 2 wherein the electrodes comprise needles.

13. A method of imaging a region of interest in an object comprising the steps of:

(a) placing the object in a static magnetic field,

(b) applying RF excitation pulses to the region of interest, and

(c) detecting magnetic resonance signals from the region of interest with an array of at least two spaced electrodes in proximity to the region of interest.

14. The method as defined by claim 13 wherein the electrodes and feed wires to the electrodes cooperatively function with tissue in the region of interest to form an RF signal detecting coil.

15. The method as defined by claim 13 wherein the electrodes comprise needles.

16. The method as defined by claim 13 wherein the electrodes are carried by a catheter.

17. The method as defined by claim 16 wherein the electrodes comprise rings around the circumference of the catheter.

18. The method as defined by claim 16 wherein the electrodes are extendable from and retractable within the catheter.